

G071
Octamethylcyclotetrasiloxane [556-67-2]

Results of Testing

Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Acute fish toxicity	40 CFR 797.1400 (modified)	rainbow trout	flow-through, 14 days	2.9, 4.4, 6.9, 12, 22 mg/L (mean measured)	Not specified	Exposure under near-saturated conditions (20 to 30 µ/L = soluble limit) identified a 14-day LC ₅₀ of 10.0 (8.5-13) µg/L.	55 FR 3482; 2/01/90 OTS0525576
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Mysid shrimp acute toxicity	40 CFR 797.1930	<i>Mysidopsis bahia</i> (mysid shrimp)	flow-through, 96 hrs	1.6, 2.2, 3.7, 9.1 µg/L (mean measured)	Not specified	Tests at the limit of solubility did not lead to mortality.	55 FR 3482; 6/05/90 OTS0525578
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Daphnid acute toxicity	40 CFR 797.1300	<i>Daphnia magna</i> (waterflea)	flow-through, 48 hrs	1.7, 2.9, 3.7, 7.8, 15 µg/L (mean measured)	Not specified	At the limit of solubility, no lethal or sublethal effects were noted. A NOEC of 15 µg/L was identified.	55 FR 22947; 6/05/90 OTS0525579
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Algae acute toxicity	40 CFR 797.1050 (modified)	<i>Selenastrum capricornutum</i> (freshwater alga)	96 hrs	22 ug/L	Not applicable	The mean cell density in cultures exposed to a saturated test solution for 96-hours was 82% of the mean cell density in control cultures.	OTS0525579
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Acute fish toxicity	40 CFR 797.1400 (modified)	sheepshead minnow	flow-through, 14 days	1.3, 1.6, 2.3, 4.2, 6.3 µg/L (mean measured)	Not specified	The 14-day LC ₅₀ was >6.3 µg/L, the limit of water solubility.	55 FR 22947; 6/05/90 OTS0525578
Octamethylcyclotetrasiloxane	556-67-2	EEATOX Algae acute toxicity	40 CFR 797.1050 (modified)	<i>Selenastrum capricornutum</i> (green alga)	Culture medium under constant illumination, 96 hrs	Saturated solution, measured initially at 22 to 23 µg/L	Not applicable	The mean cell density in exposed cultures was significantly reduced to 82% that of the controls. Cell densities increased over time in all replicates.	55 FR 22947; 6/05/90 OTS0525579
Octamethylcyclotetrasiloxane	556-67-2	EEBIOC Fish bioconcentration	40 CFR 797.1520	fathead minnow	closed system, 6 days, followed by depuration period of 14 days	0.50 µg/L (nominal)	Not specified	Mean measured daily BCF was 3,800 (± 840)X. A steady-state BCR was not attained during the study. The half-life of C-14 residues could not be calculated; at 14 days, an average of 61% of accumulated C-14 residues remained in the tissues.	56 FR 40614; 8/15/91 OTS0525577
Octamethylcyclotetrasiloxane	556-67-2	EECLIF Fish early life stage	40 CFR 797.1600	<i>Oncorhynchus mykiss</i> (rainbow trout)	93 days (60 days post-hatch)	0.25, 0.53, 1.1, 1.9, 4.4 ug/L (mean)	56/group, except for 4.4 ug/L with 62	Rainbow trout survival at the completion of the hatching period (day 33) in all concentrations ranged from 79 to 85% and was statistically comparable to the survival of the control organisms (80%). Larval survival among all concentrations ranged from 90-100%. There were no significant difference between the treatment levels and the control. The mean total length and wet weight of larvae ranged from 53 to 54 mm and from 1.5 to 1.6 g. The no observed effect concentration was determined to be 4.4 ug/L.	56 FR 5688; 1/12/91 OTS0531503

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Chemical Name	CAS No.	Study Code/Type	Protocol/Guideline	Species	Exposure	Dose/Concentration	No. per Group	Results	Reference
Octamethylcyclotetrasiloxane	556-67-2	EECTOX Chronic aquatic invertebrate toxicity	40 CFR 797.1330	<i>Daphnia magna</i> (waterflea)	flow-through, 21 days	1.7, 1.8, 4.2, 7.9, 15, 23 µg/L (mean measured)	Not specified	No effects were noted on survival at any concentration tested. EC ₅₀ (immobilization) was >15 µg/L and the LOEC was 15 µg/L. No effects were noted at 7.9 µg/L. The MATC was determined to be ≥ 7.9 and ≤ 15 µg/L. The saturation level in test water was 26 µg/L.	55 FR 22947; 6/05/90 OTS0525579
Octamethylcyclotetrasiloxane	556-67-2	EECTOX Chironomid sediment toxicity	40 CFR 795.4050 (modified)	<i>Chironomus tentans</i> (midge)	flow-through in high organic carbon sediment, 14 days	8.0, 24, 80, 240, 800 mg/kg (nominal); 2.6, 7.4, 19, 54, 170 mg/kg (mean measured)	Not specified	Lowest observed effect concentration (LOEC) was 170 mg/kg mean measured; no observed effect concentration (NOEC) was 54 mg/kg. The Maximum Acceptable Toxicant Concentration (MATC) was >54 mg/kg and <170 mg/kg (geometric mean MATC = 96 mg/kg).	56 FR 20224; 5/02/91 OTS0531486
Octamethylcyclotetrasiloxane	556-67-2	EFBDEG Microcosm biodegradation	40 CFR 796.3401(modified)	pond sediment and water	aerobic, 56 days	30 µg/L (nominal)	Not applicable	At the solubility limit, OMCTS did not appear to be susceptible to biodegradation under test conditions.	OTS0531504
Octamethylcyclotetrasiloxane	556-67-2	EFPCHEWSOL Water solubility	40 CFR 796.1860	Not applicable	seawater at 25 °C, water generator column	Not specified	Not applicable	Solubility = 33 ± 3.6 µg/L	54 FR 51322; 12/14/89 OTS0525575
Octamethylcyclotetrasiloxane	556-67-2	EFPCHEWSOL Water solubility	40 CFR 796.1860	Not applicable	freshwater (ASTM Type II), water generator column	Not specified	Not applicable	Solubility = 74 ± 9.4 µg/L	54 FR 51322; 12/14/89 OTS0525575
Octamethylcyclotetrasiloxane	556-67-2	EFTSPTVOLZ Volatilization from water	40 CFR 796.2770 (modified)	Not applicable	Measurements taken at six stirrer speeds ranging from 200 to 400 rpm.	45 µg/L	Not applicable	The measured ratio of the volatilization rate (k _v) to the oxygen reation rate (k _r) was 0.57 ± 0.17. This value is similar to that of other familiar, widely-used solvents such as benzene, chloroform, and trichloroethylene and suggests that OMCTS will have a similar aquatic half-life to these solvents	OTS0525564